

What is claimed is:

1. An electronic device, comprising:

a substrate of insulating resin having at least a pair of interior terminal portions for connection upon an upper surface thereof;

an electronic element mounted on the terminal portions on the upper surface of said substrate, having at least a pair of electrode terminals thereof;

a frame member of insulating resin, bonded on the upper surface of said substrate, and having a cavity formed for storing said electronic element therein; and

a cover member of insulating material, for hermetically sealing over the cavity of said frame member, in which said electronic element is stored, wherein electrodes are formed at or in vicinity of positions of the terminals of said electronic element stored within said cavity, for electrically conducting said interior terminal portions for connection to an outside.

2. An electronic device as defined in the claim 1, wherein said electrodes for electrically conducting said interior terminal portions to the outside are plated through-holes formed in said substrate, being filled with non-conductive resin therein.

3. An electronic device as defined in the claim 1, wherein said electrodes for electrically conducting said interior terminal portions to the outside are flat through-holes formed in said substrate.

4. An electronic device as defined in the claim 1, wherein exterior terminals for connection, being electrically connected with said internal terminal portion, are provided on a lower surface of said substrate.

5. An electronic device as defined in the claim 1, wherein conductors formed on said substrate, exposing to said cavity and the outside are made from layers of noble metal.

6. An electronic device as defined in the claim 1, wherein  
5 said substrate, said frame member and said cover member are formed from plate-like members of metal clad laminate.

7. An electronic device as defined in the claim 1, wherein  
said electronic element stored within said cavity is an optical  
element, and said cover member for sealing over said cavity is  
10 made of transparent material.

8. An electronic device, comprising:

a substrate of insulating resin having at least a pair of  
interior terminal portions for connection upon an upper surface  
thereof;

15 an electronic element mounted on the terminal portions on  
the upper surface of said substrate, having at least a pair of  
electrode terminals thereof;

a frame member of insulating resin, bonded on the upper  
surface of said substrate, and having a cavity formed for storing  
20 said electronic element therein;

at least a pair of exterior terminal portions for connection,  
formed on an outer peripheral surface of said substrate, being  
electrically conducted to said interior terminals; and

a cover member of insulating material, for hermetically  
25 sealing over the cavity of said frame member, in which said  
electronic element is stored, wherein roughened surfaces are formed  
on metal electrode portions, which are formed on the upper surface  
of said substrate for electrically conducting said interior  
terminal portions to said exterior terminal portions, where said  
30 frame member is bonded thereupon.

9. An electronic device as defined in the claim 8, wherein the metal electrode portions forming said interior terminal portions, on which the roughened surfaces are formed to be bonded with said frame member, are made of copper.

5 10. An electronic device as defined in the claim 8, wherein said terminal portions for exterior connection are formed upon concave portions on side surfaces of said substrate, being provided extending from the upper surface to the lower surface thereof.

10 11. An electronic device as defined in the claim 8, wherein said terminal portions for exterior connection are formed upon concave portions on side surfaces of said substrate, being provided on corners extending from the upper surface to the lower surface thereof.

15 12. An electronic device as defined in the claim 8, wherein said substrate, said frame member and said cover member are formed from plate-like members of metal-clad laminate.

20 13. An electronic device as defined in the claim 8, wherein said electronic element stored within said cavity is an optical element, and said cover member for sealing over said cavity is made of transparent material.

25 14. A printed wiring board for use of the electronic devices according to the claim 1, comprising a plate made of insulating resin, and plural number of electrode portions for use of said terminals for interior connection, which are formed at or in vicinity of the electrode portions of plural number of the electronic devices to be mounted thereon.

30 15. A printed wiring board for use of the electronic devices, as defined in the claim 14, wherein said electrode portions are plated through-holes, which are formed on said insulating resin plate and are filled up with non-conductive resin therein.

16. A printed wiring board for use of the electronic devices,

as defined in the claim 14, wherein said electrode portions are flat through-holes formed on said insulating resin plate.

17. A printed wiring board for use of the electronic devices according to the claim 8, comprising a plate made of insulating resin, and plural number of electrode portions for use of said terminals for interior connection, to be electrically conducted with plural number of electronic devices to be mounted, on at least one surface of said insulating resin plate, wherein surfaces of those electrode portions are roughened where said frame member is bonded thereon.

18. A printed wiring board for use of the electronic devices, as defined in the claim 18, wherein metal conductor portions formed on said insulating resin plate, including the electrode portions for forming the terminal portions for interior connection, are covered with plating of noble metal on portions other than where said frame member is bonded thereon.

19. A method for manufacturing an electronic device, comprising the following steps:

(a) forming at least a pair of terminal portions for interior connection, on an upper surface of a substrate of insulating resin;

(b) mounting an electronic element on the terminal portions for interior connection, on the upper surface of said substrate;

(c) bonding a frame member of insulating resin on the upper surface of said substrate, so as to form a cavity, in which said electronic element is stored; and

(d) bonding a cover member of insulating material on said frame member for hermetically sealing over said cavity thereof, in which said electronic element is stored, wherein in the step of said step (a), electrode portions are provided by means of forming flat through-holes at or in vicinity of positions of electrodes of the electronic element stored within said cavity, for

electrically conducting said terminal portions for interior connection to an outside thereof.

20. A method for manufacturing an electronic device, comprising the following steps:

5 (a) forming at least a pair of terminal portions for interior connection, on an upper surface of a substrate of insulating resin;

(b) mounting an electronic element on the terminal portions for interior connection, on the upper surface of said substrate;

10 (c) bonding a frame member of insulating resin on the upper surface of said substrate, so as to form a cavity, in which said electronic element is stored; and

15 (d) bonding a cover member of insulating material on said frame member for hermetically sealing over the cavity thereof, in which said electronic element is stored, wherein in the step of said step (a), roughened surfaces are formed on metal electrodes, which are provided for electrically conducting said terminal portions for interior connection to an outside thereof, where said frame member is bonded thereon.

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